

WHAT IS CLAIMED IS:

1. A method of preparing an n-type thermoelectric material,
comprising:

5 mixing and melting a dopant to be added optionally and at least
two elements selected from the group consisting of bismuth, tellurium,
selenium, antimony, and sulfur to form a material mixture;

cooling the material mixture to obtain an alloyed ingot;

pulverizing the alloyed ingot to obtain pulverized powder;

10 sintering the pulverized powder at normal pressure to obtain a
half sintered body; and

hot-pressing the half sintered body at pressure more than the
normal pressure.

2. The method according to claim 1, wherein the sintering includes
15 baking the pulverized powder at a sintering temperature of from 500
degrees centigrade to 650 degrees centigrade.

3. The method according to claim 1, wherein the hot-pressing
includes hot-pressing at a sintering temperature of from 500 degrees
20 centigrade to 650 degrees centigrade while pressurizing at a pressure
of from 10 megapascals to 45 megapascals.

4. The method according to claim 1, wherein the hot-pressing
includes hot-pressing at a sintering temperature that is not less than a
25 temperature employed in sintering the pulverized powder.

5. The method according to claim 1, wherein an average particle diameter of the pulverized power is 1 micrometer to 10 micrometers.

6. The method according to claim 1, wherein, each of the
5 pulverizing, the sintering, and the hot-pressing is performed in a solvent selected from the group consisting of hexane, $C_nH_{2n+1}OH$, and $C_nH_{2n+2}CO$, where n is an integer of 1 to 3.

7. The method according to claim 1, wherein each of the sintering
10 and the hot-pressing is performed under a non-oxidative gas atmosphere.

8. An n-type thermoelectric material prepared by a process which comprises:

15 mixing and melting a dopant to be added optionally and at least two elements selected from the group consisting of bismuth, tellurium, selenium, antimony, and sulfur to form a material mixture;

cooling the material mixture to obtain an alloyed ingot;

pulverizing the alloyed ingot to obtain pulverized powder;

20 sintering the pulverized powder at normal pressure to obtain a half sintered body; and

hot-pressing the half sintered body at pressure more than the normal pressure.

9. The n-type thermoelectric material according to claim 8, wherein an average half-height width of each of at least three (00l) planes of the n-type thermoelectric material is not more than 0.07 degree,

5 the average half-height width is obtained by subtracting a half-height width intrinsic to an X-ray diffraction apparatus from diffraction-peak half-height width measurement values obtained by an X-ray diffraction analysis with respect to the at least three (00l) planes where l is an integer, and

10 the X-ray diffraction analysis is performed for planes being in perpendicular to a direction of applying the hot press.

10. The n-type thermoelectric material according to claim 9, wherein the at least three (00l) planes are a (0015) plane, a (0018) plane, and a
15 (0021) plane, respectively.